

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P 05-039/FA	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/SE2005/000170	International filing date (day/month/year) 07-02-2005	Priority date (day/month/year) 05-02-2004
International Patent Classification (IPC) or national classification and IPC See Supplemental Box		
Applicant Vendolocus AB et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 7 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
- a. ☒ (sent to the applicant and to the International Bureau) a total of 3 sheets, as follows:
- ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
- ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
- b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input checked="" type="checkbox"/> | Box No. VIII | Certain observations on the international application |

Date of submission of the demand 05-12-2005	Date of completion of this report 10-04-2006
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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of: Cover sheet

International patent classification (IPC)

G08B 25/10 (2006.01)

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Box No. I Basis of the report

1. With regard to the **language**, this report is based on:

- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rules 12.3(a) and 23.1(b))
- ☐ publication of the international application (Rule 12.4(a))
- ☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1 - 20 as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- pages _____ as originally filed/furnished
- pages* _____ as amended (together with any statement) under Article 19
- pages* 1 - 3 received by this Authority on 03 - 04 - 2006
- pages* _____ received by this Authority on _____
- ☒ the drawings:
- pages 1 - 6 as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1 - 13</u>	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	<u>1 - 13</u>	NO
Industrial applicability (IA)	Claims	<u>1 - 13</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The invention is intended to provide an improved alarm system etc.

Reference is made to the following documents:

D1: US 6377179 B1
D2: WO 0122701 A
D3: US 4845464 A
D4: US 5552763 A

Document D1 (column 2, line 33 - column 9, line 2, figures 1 - 5, abstract) discloses an alarm system including a portable transmitter unit (10, an accelerometer (50) with an adjustable threshold (reference), a GPS-receiver (56), a microprocessor (38) and a video unit (52). At an alarm, among other things, the identity (column 6, lines 11 - 31) and the location are radio transmitted via a cellular network (60) to a central processing center (34). From a computer, the user can monitor and control the transmitter unit (10) via the Internet (column 7, line 59 - column 8, line 5).

Document D2 (page 2, line 16 - page 9, line 2, figures 1 - 3, abstract) discloses a similar alarm system including a portable mobile telephone (1) with a built-in alarm unit having a GPS-receiver and more than one type of sensor, for example, a movement sensor, an infra-red sensor, a heat sensor and an air movement sensor etc. This document is not referred to in this report.

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

Document D3 (column 2, line 19 - column 3, line 13, figure 1, abstract) discloses a similar alarm system including a microprocessor (100), a microphone (120) and a three axes accelerometer (20, 22, 24). An alarm is triggered by the simultaneous occurrence of several predetermined conditions.

Document D4 (column 1, line 55 - column 5, line 31, figures 1 - 3, abstract) discloses an alarm system that automatically adjusts sensitivity of individual sensors based on evaluation of background level over a period of time. This document is not referred to in this report.

The invention claimed in claims 1 - 4, 8 - 11 and 13 differs from what is known from document D1, the closest prior art, essentially in the following features:

1. The sensor system has a microphone and a temperature sensor, the accelerometer is triaxial, and an alarm signal is triggered upon deviation from at least two environment-dependent references.
2. The references are stored in a memory connected to the processor via a distributed computer network (the Internet), and the memory is adapted for dynamic and interactive update and development for different purposes by manoeuvring via fixed and/or mobile telephony and/or radio and/or a computer unit.

The technical problem is how to improve the alarm system etc.

It would be obvious to a person skilled in the art to suggest these features for the following reasons:

1. The meaning of the expression "an alarm signal is triggered upon deviation from at least two environment-dependent references" is unclear. The technical problem is how to reduce the risk of false alarms. However, it belongs to the common general knowledge to reduce the risk of false alarms by using a plurality of sensors and triggering an alarm when at least two sensors produce signals that exceed their references, compare with document D3, which also discloses the use of a triaxial accelerometer and a microphone as sensors. Therefore, it would be obvious to use this knowledge to modify the alarm system of document D1.

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

2. It is unclear what technical problem is solved by the second feature. It would be obvious to a person skilled in the art to suggest that the computer of the system according to document D1 stores thresholds (references) considering that the computer monitors and controls the transmitter unit (10) and that the threshold (reference) is adjustable. Furthermore, no unexpected technical effect is obtained by this construction.

According to the arguments above, the invention claimed in claims 1 - 4, 8 - 11 and 13 is novel but lacks an inventive step. Claims 1 - 4, 8 - 11 and 13 fulfil the requirement of industrial applicability.

In claims 5 - 7 and 12 slight constructional variations are suggested that are obvious to a person skilled in the art, especially considering no unexpected technical effect is obtained. Therefore, the invention claimed in claims 5 - 7 and 12 lacks an inventive step. Claims 5 - 7 and 12 fulfil the requirement of industrial applicability.

To sum up, the invention claimed in claims 1 - 13 is novel but lacks an inventive step. All the claims fulfil the requirement of industrial applicability.

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

In claim 1, lines 3 - 4, the expression "to trigger an alarm signal upon deviation from at least two environment-dependent references" is unclear since it does not reveal what deviates from the references.

The meaning of the expression "environment-dependent references" etc. in claim 1, lines 4 and 11 - 12 and claim 9, lines 22 and 24 is unclear.

The meaning of the expression "accelerometer/silicon crystal" in claim 1, line 8 and claim 9 is unclear, especially since "silicon crystal" is not a sensor.

The meaning of the expression "the following sensors: frequency transmitters" in claims 2 and 10 is unclear. What is sensed by the frequency transmitters?

AMENDED CLAIMS

1. An alarm system (10) intended to trigger an alarm signal upon deviation from at least two environment-dependent references predetermined for a specific environment, which alarm system (10) comprises at least one portable unit (12) intended to be placed in said environment, which unit (12) has a size not greater than a mobile telephone, which unit (12), each comprising a sensor system (14), each comprising an accelerometer/silicon crystal, microphone and temperature sensor, wherein said accelerometer is triaxial, a processor member (16) connected to the sensor system (14) and adapted for the comparison of signals received from the sensor system (14) and said predetermined environment-dependent reference/references, a communication member (18) of a unique identity connected to the processor member (16) and adapted for wireless communication upon, for instance, the triggering of an alarm signal, and a positioning member (20) connected to the processor member (16) and adapted to indicate, at least upon the triggering of an alarm signal, the position of said unit (12), which alarm system (10) furthermore comprises a memory member (24) connected to the processor member (16) via a distributed computer network (22) and adapted for the storage of said predetermined reference/references wherein the memory member (24) furthermore is adapted for dynamic and interactive update and development for different purposes by manoeuvring via fixed and/or mobile telephony and/or radio and/or computer unit.
2. An alarm system (10) according to claim 1, **characterized in** that each sensor system (14) furthermore comprises at least one of the following sensors: frequency transmitters, strain gauges, camera, UV/photocells, electronic noses, anemometers, infrared sensors, gamma transducers, laser sensors, inductive sensors, flow sensors, level transducers, tension gauges and pressure gauges.
3. An alarm system (10) according to any one of claims 1 or 2, **characterized in** that each positioning member (20) consists of at least one of the following units: GPS unit, GPRS unit and GSM unit.

4. An alarm system (10) according to any one of claims 1–3, **characterized in** that said predetermined reference may consist of a sound/vibration image specific to each portable unit (12).

5 5. An alarm system (10) according to any one of claims 1–4, **characterized in** that each unit (12) comprises at least one basic module (12₁), as well as a protecting cover (12_n).

6. An alarm system (10) according to any one of claims 1–5, **characterized in** that the memory member (24) is adapted for continuous storage of comparisons and/or continuous storage of deviations.

7. An alarm system (10) according to any one of claims 1–6, **characterized in** that the memory member (24) consists of a database (24).

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8. Method for triggering an alarm signal by means of an alarm system (10) according to any one of claims 1–7, which method comprises the steps of:

- by means of the sensor system (14) detecting different states comprising vibrations, relative position changes, accelerations and temperature, wherein said accelerations are detected against three axes;

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- comparing the signals received from the sensor system (14) and at least two environment-dependent references predetermined for a specific environment and stored in the memory member (24);

- upon deviation from said environment-dependent reference/references, triggering an alarm signal; and

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- according to instantaneous control or predetermined configuration, by means of the communication member (18) of a unique identity, transmitting a message to at least one receiver; and

- according to instantaneous control or predetermined configuration, by means of the positioning member (20), determining the position of the unit (12);

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- transmitting the position to the receiver/receivers; and

- to dynamically and interactively update and develop said memory member (24) for different purposes by manoeuvring via fixed and/or mobile telephony and/or radio and/or computer unit.

5 9. Method according to claim 8, **characterized in** that the detection step comprises:

- the detection of the different states by means of an accelerometer/silicon crystal, microphone and temperature sensor.

10 10. Method according to claim 9, **characterized in** that the detection step furthermore comprises:

- the further detection of different states by means of the following sensors: frequency transmitters, strain gauges, camera, UV/photocells, electronic noses, anemometers, infrared sensors, gamma transducers, laser sensors, inductive sensors, flow sensors, level transducers, tension gauges and pressure gauges.

11. Method according to claim 8-10, **characterized in** that the positioning step comprises:

- 20 - the determination of the position by means of at least one of the following units: GPS unit, GPRS unit and GSM unit.

12. Method according to any one of claims 8-11, **characterized in** that the method furthermore comprises the step of:

- 25 - registering and in the memory member (24) storing the reference/references that may consist of a sound/vibration image specific to each unit (12).

13. At least one computer software product ($102_1, \dots, 102_n$) directly downloadable in the internal memory of at least one digital computer ($100_1, \dots, 100_n$), comprising software code portions for executing the steps according to claim 8 when said at least one product ($102_1, \dots, 102_n$) is run on said at least one computer ($100_1, \dots, 100_n$).